

INTEGRATING CASE-BASED REASONING IN JOB MATCHING SYSTEM FOR PRE-SELECTION PROCESS OF RECRUITMENT

**A thesis submitted to the College of Arts and Sciences
in partial fulfillment of the requirements for the degree of
Master of Science (Information Technology)
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by

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ABSTRACT

The progress of Internet and World Wide Web technology brings the movement of traditional recruitment process to web based recruitment. Applying job matching approach automatically will bring benefit to both job seekers and employers. For the employer, the costs of manually preselecting potential candidates have risen and employers are searching for means to automate the preselecting of candidates. A few techniques could be applied in order to implement job matching process such as using fuzzy matching, semantic, rule-base reasoning and case-based reasoning (CBR). This study aims to demonstrate that CBR could be integrated in job matching to recommend the best candidate suitable with the job requirement using similarity measurement. As a result, a prototype called Intelligent Agent Dot Com (IADC) using CBR engine for matching purposes has been developed, validated and evaluated in this study. The finding through validation and evaluation phase indicates that IADC is reliable to assist employer in the pre-selection process during recruitment. In fact, the pre-selection of candidates has become easier than the manual process.

ABSTRAK

Perkembangan terkini teknologi internet dan *World Wide Web* telah membawa anjakan baru kepada proses pengisian kekosongan jawatan daripada kaedah tradisional kepada pendekatan berasaskan aplikasi atas talian. Perlaksanaan proses suai padan (penjodohan) secara automatik akan menguntungkan kedua belah pihak, samaada pihak majikan atau pencari kerja. Kos yang semakin tinggi terpaksa ditanggung oleh pihak majikan dalam melaksanakan proses pemilihan calon secara manual menyebabkan mereka mencari alternatif untuk melaksanakannya secara automatik. Beberapa teknik yang boleh dipakai untuk melaksanakan proses penjodohan ini ialah *fuzzy matching*, *semantic*, *rule-base reasoning* and *case-based reasoning*(*CBR*). Kajian ini bertujuan untuk mendemonstrasikan bahawa *CBR* boleh diintegrasikan dengan sistem penjodohan jawatan bagi menyarankan calon-calon terbaik yang bersesuaian dengan keperluan jawatan tersebut menggunakan kaedah pengukuran similariti. Intelligent Agent Dot Com (IADC) merupakan sistem prototaip yang mengaplikasikan *CBR* untuk tujuan penjodohan telah dibangunkan, diuji dan dinilai dalam kajian ini. Hasil kajian ini membuktikan bahawa IADC ini selain boleh dipercayai dalam membantu majikan membuat pemilihan awal calon-calon, ia juga membolehkan mereka melaksanakan proses tersebut dengan mudah dan pantas.

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LIST OF ABBREVIATION

ACF	Automated Collaborative Filtering
ASHSD	Advisory Support for Home Settlement in Divorce
CASPER	Case-Based Profiling for Electronic Recruitment
CBR	Case-based Reasoning
DTA	Dynamic Traffic Assignment
GA	Genetic Algorithm
IADC	Intelligent Agent Dot Com
IIS	Internet Information Server
RBR	Rule-based Reasoning
TAM	Technology Acceptance Model
UML	Unified Modeling Language

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CHAPTER 1

INTRODUCTION

1.1 Overview

Nowadays, the usage of internet and web technology had changed our way of life-style. These include the way people interact with each other, doing work and communicate amongst themselves. Currently most people prefer to do shopping online, rather than wasting time searching for the parking lot. Most bank customers prefer carrying out bank transaction through internet banking than wasting time and energy for queuing. Mochol, Wache and Nixon (2007) stated that many business transaction are done through internet. The existences of online systems through web makes human life becomes much easier. In the same way, web-based technology also has an impact on the jobs' search and recruitment process.

Basically there are many approaches available for the job seeker to search for job and for the employer to advertise the vacancy. Previously, if someone seeks for any job available, the newspapers will be the first place that they will be looking for. Due to the advanced of internet technology, this task could be accomplished through web by

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